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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,756	03/29/2006	Katsumi Uehara	062709-0165	3990

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FOLEY AND LARDNER LLP
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EXAMINER

WEINSTEIN, LEONARD J

ART UNIT	PAPER NUMBER
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3746

MAIL DATE	DELIVERY MODE
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11/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/573,756	Applicant(s) UEHARA ET AL.	
	Examiner LEONARD J. WEINSTEIN	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment of August 21, 2008. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.
2. The examiner acknowledges the amendment to claim 1 and notes that claims 14-17 have been introduced for examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 7, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Iverson 6,006,785. Iverson teaches all the limitations as claimed for a compressor including: **[claim 1]** a cylinder block 1 which has a cylinder bore 2 to accommodate a piston 28, a crank chamber, not shown but known in the art be a common component of an axial piston compressor as disclosed (col. 1 ll. 5-14), which is provided at one end of the cylinder block 1, a suction chamber and a discharge chamber, neither shown but each known in the art be a common component of an axial piston compressor, that are provided at the other end of the cylinder block 1, a valve, as defined by elements 5, 6, 7, 10, 13, and 15, that is provided between the cylinder bore 1 and the suction chamber, as defined by a chamber that would be in communication with suction hole element 8 as is known in the art to be common to an axial piston compressor but not shown, and

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between the cylinder bore 1 and the discharge chamber, as defined by a chamber that would be in communication with a discharge hole element 9 as is known in the art to be common to an axial piston compressor but not shown, a valve plate 7 provided with the valve, elements 5, 6, 7, 10, 13, and 15, and having a suction hole 8 to communicate between the cylinder bore 1 and the suction chamber (not shown) and a discharge hole 9 to communicate between the cylinder bore 1 and the discharge chamber (not shown), a suction valve 15 provided with the valve, elements 5, 6, 7, 10, 13, and 15, and assembled to the side of the cylinder bore 1 of the valve plate 7, and the suction valve 15 is comprised of a flexible plate 18 to be able to open and close the suction hole 8, a drive shaft, not shown but known in the art to a component of an axial piston compressor as disclosed, that is rotatably and axially supported within the crank chamber (not shown) to reciprocally actuate the piston 28 (col. 3 ll. 55-57), and a valve structure, as shown in figure 1 and defined by elements 16, 17, 18, and 19, in which the suction valve 15 is formed with a suction valve main body 18 and an opposing part 17, wherein the opposing part 17 that is integrally formed on the suction valve main body 18, and faces the suction hole 8 and a valve seat, as defined by elements 5 and 6, at the opening edge of the suction hole 8 so as to be able to open and close the suction hole 8, a coating layer 10 having a predetermined thickness is coated on at least one of the valve plate body 7, as defined by portion of element 10 surrounding elements 12 and 13 which covers element 7 on an underside and creates a clearance between a suction valve 15 and a cylinder block element 1 as shown in figure 7, excluding the valve seat, elements 5 and 6, and the suction valve main body 18 so as to form a

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predetermined clearance between the opposing part 18 and the valve seat, as defined by elements 5 and 6, as defined by the situation when element 17 abuts element 25 on an opposite side of element 17 from that of the valve seat formed by elements 5 and 6 when a suction hole is closed – there also a space between element 18 and element 5 of the valve, as interpreted by the examiner, as shown in figure 7 for the situation when a suction hole is opened; **[claim 7]** and an upper surface of the valve seat, elements 5 and 6, is chamfered or rounded, as defined by sloping ramp element 6 and elements 20, 21, and 22 (col. II. 34-37); **[claim 14]** wherein the valve seat, as defined by elements 5 and 6, is provided at an opening, opening formed by element 8, of the suction hole 8; **[claim 15]** where the valve seat, as defined by elements 5 and 6, is provided around the suction hole 8; **[claim 16]** wherein the coating layer 10 having a predetermined thickness is disposed between the opposing part 17 and the valve seat, as defined by elements 5 and 6, to thereby form the predetermined clearance between them.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 12, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara et al. 6,318,980 in view of Iverson. Kurihara teaches all the limitations as claimed for a compressor including: **[claim 1]** a cylinder block (fig. 1), a crank chamber, defined by elements 30 and 27 as shown in figure 1, a cylinder bore 71 to accommodate a piston 46, a suction chamber 72, a discharge chamber 70, a valve 22 provided between a cylinder bore 71 and a suction chamber 72 and a discharge chamber 70, a valve plate 21 provided with the valve 22 (suction valve) and having a suction hole 25 to communicate between the cylinder bore 71 and the suction chamber 72 and a discharge hole 24 to communicate between the cylinder bore 71 and the discharge chamber 70, a suction valve 22 provided with the valve and assembled to the side of the cylinder bore 71 of the valve plate 21, and the suction valve 22 is comprised of a flexible plate as shown in figure 27, to be able to open and close the suction hole 25, and a drive shaft 34 axially and rotatably supported in a crank chamber to reciprocate a piston 46 as shown in figure 1; **[claim 12]** and a valve plate 21 including a plurality of suction holes 25 as shown in figure 26 with reference to the embodiment of figure 27, equally space on an outer periphery of a valve plate 21 but fails to teach the valve structure; **[claim 14]** wherein the valve seat 21 is provided at an opening, opening formed by element 25, of the suction hole 25; **[claim 15]** where the valve seat 21 is provided around the suction hole 25; wherein the valve seat 21 provides for a resting position for the valve in a closed state of the valve. Kurihara fails to teach the

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following limitation that is taught by Iverson for a compressor comprising: **[claim 1]** a valve structure, as shown in figure 1 and defined by elements 16, 17, 18, and 19, in which the suction valve 15 is formed with a suction valve main body 18, and an opposing part 17 that is integrally formed on the suction valve main body 18, and faces the suction hole 8 and a valve seat, as defined by elements 5 and 6, at the opening edge of the suction hole 8 so as to be able to open and close the suction hole 8, and clearance forming means (col. 3 ll. 19-24), comprising a coating layer 10 having a predetermined thickness coated on at least one of the valve plate main body 7, as defined by portion of element 10 surrounding elements 12 and 13 which covers element 7 on an underside and creates a clearance between a suction valve 15 and a cylinder block element 1 as shown in figure 7, excluding the valve seat, elements 5 and 6, at the opening edge of the suction hole 8 and the suction valve main body 18; **[claim 16]** wherein the coating layer 10 having a predetermined thickness is disposed between the opposing part 17 and the valve seat, as defined by elements 5 and 6, to thereby form the predetermined clearance between them.. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a suction valve main body and hole to provide a clearance between a valve main body and a valve plate or a cylinder block, in order to provide a valve structure that would facilitate a flow of gas refrigerant into a compression chamber directed toward the middle of a cylinder wherein a piston reciprocates to decrease the heating of a gas and increase a degree of fill (Iverson – col. 1 ll. 60-67).

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8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iverson US 6,006,785 in view of Kurze et al. US 5,487,825. Iverson discloses the claimed invention except for a coating layer comprised of fluorine. Kurze teaches that ceramic fluorine polymer layers can be layered on to metal alloys to protect an alloy, resist corrosion, and reduce wear of machine parts that are layered with the polymer. One such application disclosed by Kurze is a compressor wheel (Kurze - col. 6 ll. 24-29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a coating layer in valve configuration for the suction hole of a compressor, as taught by Iverson, that comprises at least one polymer layer comprising fluorine as taught by Kurze, in order to provide a protective clearance means that is corrosion and wear resistant (Kurze - col. 2 ll. 15-19).

Response to Arguments

9. Applicant's arguments filed August 21, 2008 have been fully considered but they are not persuasive.

10. The examiner notes that the applicant has presented arguments directed toward a single reference, specifically Iverson US 6,006,785, however does not present explicit arguments towards the combinations suggested by the examiner in items 7 and 8 of the office action June 6, 2008.

11. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

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USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

12. In response to applicant's argument that Iverson alone does not teach a valve seat at the opening edge of the suction hole and that the limitations of claim 1 establish that a valve seat and the suction hold are located on the same side. The examiner disagrees and points to the broad language of the claim in response. Specifically the limitations of "the opposing part . . . faces the suction hole and a valve seat **AT** the opening edge of the suction hole." For an element to be provided **AT** the location of another reference element all that is required is some reasonable degree of proximity between the element and the reference element. The language presented, for example "a valve seat **provided at** an opening edge of the suction hole" in new claim 14 (similar language found in line 19 of claim 1), can be interpreted as merely a spatial not a structural relationship. Providing an element at another element limits the first element to be near the second element and touching, abutting, supporting, or even surrounding (emphasis added) the second element. Therefore the limitations as claimed are sufficiently broad and claim 1 is anticipated by Iverson, and also unpatentable over Kurihara in view of Iverson as discussed above.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/Leonard J Weinstein/
Examiner, Art Unit 3746